

1 **WHAT IS CLAIMED IS:**

2 1 . A method for driving liquid crystal display devices involving the
3 generation of $N+1$ levels of output voltage ($V_0 \sim V_N$), comprising the steps of:
4 defining a minimum voltage as base voltage (V_0);
5 defining a maximum voltage as high voltage (V_N);
6 defining all voltage levels among voltage levels to-be-established $V_1 \sim V_{N-1}$) other than the base voltage (V_0) and the high voltage (V_N);
7 generating any voltage level among voltage levels to-be-established ($V_1 \sim V_{N-1}$) basing on using the high voltage(V_N), and then defining a new voltage as
8 an established voltage level;
9 generating any voltage level among voltage levels to-be-established ($V_1 \sim V_{N-1}$) basing on the base voltage (V_0), the high voltage(V_N), and all previously
10 established voltage levels, and then defining the new voltage as an established
11 voltage level;
12 wherein,
13 the established voltage level is always used as the base voltage for
14 establishing the next voltage in voltage levels to-be-established ($V_1 \sim V_{N-1}$);
15 the voltage difference dV between any two adjacent voltage levels is
16 always a constant value, from the base voltage to the $\frac{N+1}{2}-1$ th voltage level,
17 and from $\frac{N+1}{2}$ th voltage level to the high voltage (V_N).

18 2. The method for driving liquid crystal display devices as claimed in
19 claim 1, wherein all the established voltage levels are totaled up to six ($N+1=6$);
20 the voltage levels $V_0 \sim V_5$ are arranged in order from the lowest to the highest;
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1 and the voltage difference dV between any two adjacent voltage levels shall
2 satisfy the conditions: $V5 - V4 = V4 - V3 = V2 - V1 = V1 - V0 = dV$.

3 3. The method for driving liquid crystal display devices as claimed in
4 claim 2, wherein when the base voltage ($V0$) has a zero value:

5 the second voltage ($V2$) is obtained from the high voltage ($V5$);

6 the first voltage ($V1$) is obtained by having the second voltage ($V2$)
7 divided by two;

8 the fourth voltage ($V4$) is obtained by having the high voltage ($V5$)
9 subtracted by the first voltage ($V1$); and

10 the third voltage ($V3$) is obtained by having the high voltage ($V5$)
11 subtracted by the second voltage ($V2$).

12 4. The method for driving liquid crystal display devices as claimed in
13 claim 2, wherein when the base voltage ($V0$) has a zero value:

14 the first voltage ($V1$) is obtained from the high voltage ($V5$);

15 the second voltage ($V2$) is obtained by having the first voltage ($V1$)
16 multiplied by two;

17 the fourth voltage ($V4$) is obtained by having the high voltage ($V5$)
18 subtracted by the first voltage ($V1$); and

19 the third voltage ($V3$) is obtained by having the high voltage ($V5$)
20 subtracted by the second voltage ($V2$).

21 5. The method for driving liquid crystal display devices as claimed in
22 claim 2, wherein when the base voltage ($V0$) has a zero value;

23 the third voltage ($V3$) is obtained from the high voltage ($V5$);

24 the second voltage ($V2$) is obtained by having the high voltage ($V5$)

1 subtracted by the third voltage (V3);
2 the first voltage (V1) is obtained by having the second voltage (V2)
3 divided by two; and
4 the fourth voltage (V4) is obtained by having the high voltage (V5)
5 subtracted by the first voltage (V1).
6 6. The method for driving liquid crystal display devices as claimed in
7 claim 2, wherein when the base voltage (V0) has a zero value:
8 the fourth voltage (V4) is obtained from the high voltage(V5);
9 the first voltage (V1) is obtained by having the high voltage (V5)
10 subtracted by the fourth voltage (V4);
11 the second voltage (V2) is obtained by having the first voltage (V1)
12 multiplied by two; and
13 the first voltage (V1) is obtained by having the high voltage (V5)
14 subtracted by the second voltage (V2).